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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/815,282	03/23/2001	Kouichi Nagai	010391	4556

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ARMSTRONG,WESTERMAN & HATTORI, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER	
GURZO, PAUL M	
ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 09/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/815,282	NAGAI ET AL.	
	Examiner	Art Unit	
	Paul Gurzo	2881	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *16 July 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 and 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Otaka et al. (5,412,209).

Regarding claims 1 and 12, 209 teaches a scanning electron microscope and method of controlling a scanning electron microscope comprising an irradiating unit that irradiates an object (12) with an electron beam, and a detecting unit (30) that detects electron released from the object (12) due to irradiation at the appropriate magnification for observing the object (col. 5, line 33 - col. 6, line 50, col. 8, lines 55-58, col. 12, lines 25-38, and Fig.1). 209 also teaches that the electron beam is irradiated on the surface for a predetermined period based on the magnification (col. 12, lines 25-38).

Regarding claims 2-7 and 13-18, as the claimed invention is best understood in view of the specification, 209 teaches extracting image data and displaying it in accordance with the extracted image data (col. 9, lines 55-58), and it is inherent that the image is displayed using only the desired stored data. Further, it is inherent that the magnification and period are correlated and the magnification varies based on the measured values and is changed as needed based on a threshold value so that detection is accurate with minor error distribution (col. 12, lines 25-38).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8-11 and 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otaka et al. (5,412,209), and further in view of Nakagaki et al. (6,476,388).

Regarding claims 9,10,20, and 21, as the claimed invention is best understood in view of the specification, 209 teaches a scanning electron microscope and method of controlling a scanning electron microscope comprising an irradiating unit that irradiates an object (12) with an electron beam, and a detecting unit (30) that detects electron released from the object (12) due to irradiation as applied above. It is obvious that 209 teaches a first scanning range, but it does not explicitly teach a second scanning range in a second direction.

However, 388 teaches a first position coordinate and a second position coordinate that are irradiated by an electron beam and the appropriate image is extracted and displayed (col. 4, lines 39-67). It is obvious that the first and second positions can be viewed as first and second scanning ranges and that scanning occurs in two different directions (raster scanning). In addition, 388 teaches the use of appropriate high and low magnification and it is obvious that the desired time intervals are used with regard to the first and second scanning ranges. They also teach time intervals for scanning ranges based on low and high magnification modes (col. 30, line 49 - col. 31, line 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a first and second scanning range because these values

can be used to determine a correcting coefficient that can be used for accurate irradiation to increase defect detection and subsequent imaging.

Regarding claims 8 and 19, 388 teaches as first and second magnification (high and low) and it is obvious that these magnifications are determined based on the appropriate values that are obtained (col. 4, lines 29-67).

Regarding claims 11 and 22, 388 teaches a switching control unit for controlling to switch at least scanning means so as to be obtained a digital image signal of a low magnification based on a wide image taking field of view and a digital image signal of a high magnification based a narrow image taking field of view being switched from an A/D conversion unit, and a beam spot diameter control unit for controlling to switch a spot diameter of an electron beam at a surface of an object substrate in controlling to switch the signals by the switching control unit or a beam spot diameter control unit for controlling the beam spot of the electron beam based on information concerning a surface texture on an image taking portion of the object substrate in taking an image thereof in a wide image taking field of view by controlling to switch the signals by the switching control unit (col. 3, lines 12-29). The wide and narrow images that are taught are viewed as a first and second scanning range, and it is obvious that the image that is taken of the scanning range is taken with data that falls within the desired range.

Regarding claims 23-25, the above-applied prior art teaches the claimed irradiation, detection, and image acquisition as described above, and 388 teaches that the use of a low magnification mode for acquiring an image and a high magnification mode for taking and storing an image that is indicative of the detected defects (col. 4, lines 29-67). The second, narrow image is a sub-region of the object, and an image of this region is formed as taught above, and

the image can be used to measure and detect defects and pattern size. In addition, 209 also teaches that the electron beam is irradiated on the surface for a predetermined period based on the magnification (col. 12, lines 25-38), and it is obvious that the magnification and period will vary accordingly.

Response to Arguments

Applicant's arguments filed on July 16, 2003 have been fully considered but they are not persuasive. Applicant argues that the predetermined time refers to the time spent at the lower magnification, not the scan time. However, as the claims are read and understood, the predetermined time correlates to the magnification mode, and this teaches on the predetermined period as a function of the magnification.

Applicant argues that there is no teaching of adjusting the ratio of the ranges when the magnification is changed. However, independent claims 9 and 20 do not disclose any type of ratio adjustment.

Applicant also argues that the scanning position and the scanning range are not the same thing. However, because two-dimensional scanning occurs ('388 col. 8, line 59 - col. 9, line 36), at various locations, this scanning is viewed as a range, as explicitly stated in col. 9, lines 16-18.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Gurzo whose telephone number is (703) 306-0532. The examiner can normally be reached on M-Thurs. 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on (703) 308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PMG
September 9, 2003

JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800